

Amendments to the Claims:

1. (Original) A method for embedding digital watermark data in digital data contents, said method comprising the steps of:

- receiving said digital data contents and said digital watermark data;
- dividing said digital data contents into block data;
- obtaining a frequency coefficient of said block data;
- obtaining a complexity of said block data;
- obtaining an amount of transformation of said frequency coefficient from said complexity and said digital watermark data by using a quantization width;
- embedding said digital watermark data in said digital data contents by transforming said frequency coefficient by said amount; and
- generating watermarked digital data contents.

2. (Original) The method as claimed in claim 1, said step of obtaining said complexity of said block data comprising the steps of:

- transforming said block data, by applying a wavelet transform, into coefficients of said wavelet transform, and
- obtaining said complexity on the basis of the number of high frequency coefficients in said coefficients of said wavelet transform, each of said high frequency coefficients exceeding a threshold.

3. (Original) A method for embedding digital watermark data in digital data contents, said method comprising the steps of:

- receiving said digital data contents and said digital watermark data;
- dividing said digital data contents into block data;
- obtaining a frequency coefficient of said block data;
- obtaining a complexity of said block data;
- obtaining an amount of transformation of said frequency coefficient from said digital watermark data by using a quantization width corresponding to said frequency coefficient, said quantization width being obtained beforehand according to a manipulation method of said digital data contents;
- embedding said digital watermark data in said digital data contents by

Attorney Docket No. 10746/36

transforming said frequency coefficient by said amount; and
generating watermarked digital data contents.

4. (Original) The method as claimed in claim 3, wherein said quantization width is obtained by a method comprising the steps of:

- dividing first digital data contents into one or a plurality of first block data;
- dividing second digital data contents into one or a plurality of second block data, said second digital data contents being obtained by manipulating said first digital data contents with a predetermined manipulation method;
- transforming said first block data and said second block data into first frequency coefficients and second frequency coefficients respectively by applying an orthogonal transform;
- obtaining difference values between said first frequency coefficients and said second frequency coefficients for each frequency coefficient;
- calculating a standard deviation of distribution of said difference values; and
- obtaining said quantization width by multiplying said standard deviation by a watermark embedding strength.

5. (Original) A method for reading digital watermark data embedded in digital data contents, said method comprising the steps of:

- receiving said digital data contents;
- dividing said digital data contents into block data;
- obtaining a frequency coefficient of said block data; and
- generating digital watermark data from said frequency coefficient by using a quantization width corresponding to said frequency coefficient, said quantization width being obtained beforehand according to a manipulation method of said digital data contents.

6. (Original) The method as claimed in claim 5, wherein said quantization width is obtained by a method comprising the steps of:

- dividing first digital data contents into one or a plurality of first block data;
- dividing second digital data contents into one or a plurality of second block

Attorney Docket No. 10746/36

data, said second digital data contents being obtained by manipulating said first digital data contents with a predetermined manipulation method;

transforming said first block data and said second block data into first frequency coefficients and second frequency coefficients respectively by applying an orthogonal transform;

obtaining difference values between said first frequency coefficients and said second frequency coefficients for each frequency coefficient;

calculating a standard deviation of distribution of said difference values; and

obtaining said quantization width by multiplying said standard deviation by a watermark embedding strength.

7. (Original) An apparatus for embedding digital watermark data in digital data contents, said apparatus comprising:

means for receiving said digital data contents and said digital watermark data;

means for dividing said digital data contents into block data;

means for obtaining a frequency coefficient of said block data;

means for obtaining a complexity of said block data;

means for obtaining an amount of transformation of said frequency coefficient from said complexity and said digital watermark data by using a quantization width;

means for embedding said digital watermark data in said digital data contents by transforming said frequency coefficient by said amount; and

means for generating watermarked digital data contents.

8. (Original) The apparatus as claimed in claim 7, said means for obtaining said complexity of said block data comprising:

means for transforming said block data, by applying a wavelet transform, into coefficients of said wavelet transform, and

means for obtaining said complexity on the basis of the number of high frequency coefficients in said coefficients of said wavelet transform, each of said high frequency coefficients exceeding a threshold.

9. (Original) An apparatus for embedding digital watermark data in digital data

Attorney Docket No. 10746/36

contents, said apparatus comprising:

- means for receiving said digital data contents and said digital watermark data;
- means for dividing said digital data contents into block data;
- means for obtaining a frequency coefficient of said block data;
- means for obtaining a complexity of said block data;
- means for obtaining an amount of transformation of said frequency coefficient from said digital watermark data by using a quantization width corresponding to said frequency coefficient, said quantization width being obtained beforehand according to a manipulation method of said digital data contents;
- means for embedding said digital watermark data in said digital data contents by transforming said frequency coefficient by said amount; and
- means for generating watermarked digital data contents.

10. (Original) The apparatus as claimed in claim 9, wherein said quantization width is obtained by means comprising:

- means for dividing first digital data contents into one or a plurality of first block data;
- means for dividing second digital data contents into one or a plurality of second block data, said second digital data contents being obtained by manipulating said first digital data contents with a predetermined manipulation method;
- means for transforming said first block data and said second block data into first frequency coefficients and second frequency coefficients respectively by applying an orthogonal transform;
- means for obtaining difference values between said first frequency coefficients and said second frequency coefficients for each frequency coefficient;
- means for calculating a standard deviation of distribution of said difference values; and
- means for obtaining said quantization width by multiplying said standard deviation by a watermark embedding strength.

11. (Original) An apparatus for reading digital watermark data embedded in digital data contents, said apparatus comprising:

Attorney Docket No. 10746/36

means for receiving said digital data contents;
means for dividing said digital data contents into block data;
means for obtaining a frequency coefficient of said block data; and
means for generating digital watermark data from said frequency coefficient by using a quantization width corresponding to said frequency coefficient, said quantization width being obtained beforehand according to a manipulation method of said digital data contents.

12. (Original) The apparatus as claimed in claim 11, wherein said quantization width is obtained by means comprising:

means for dividing first digital data contents into one or a plurality of first block data;
means for dividing second digital data contents into one or a plurality of second block data, said second digital data contents being obtained by manipulating said first digital data contents with a predetermined manipulation method;
means for transforming said first block data and said second block data into first frequency coefficients and second frequency coefficients respectively by applying an orthogonal transform;
means for obtaining difference values between said first frequency coefficients and said second frequency coefficients for each frequency coefficient;
means for calculating a standard deviation of distribution of said difference values; and
means for obtaining said quantization width by multiplying said standard deviation by a watermark embedding strength.

13. (Original) An integrated circuit for embedding digital watermark data in digital data contents, said integrated circuit comprising:

means for receiving said digital data contents and said digital watermark data;
means for dividing said digital data contents into block data;
means for obtaining a frequency coefficient of said block data;
means for obtaining a complexity of said block data;
means for obtaining an amount of transformation of said frequency coefficient

Attorney Docket No. 10746/36

from said complexity and said digital watermark data by using a quantization width;
means for embedding said digital watermark data in said digital data contents
by transforming said frequency coefficient by said amount; and
means for generating watermarked digital data contents.

14. (Original) The integrated circuit as claimed in claim 13, said means for obtaining said complexity of said block data comprising:

means for transforming said block data, by applying a wavelet transform, into coefficients of said wavelet transform, and

means for obtaining said complexity on the basis of the number of high frequency coefficients in said coefficients of said wavelet transform, each of said high frequency coefficients exceeding a threshold.

15. (Original) An integrated circuit for embedding digital watermark data in digital data contents, said integrated circuit comprising:

means for receiving said digital data contents and said digital watermark data;

means for dividing said digital data contents into block data;

means for obtaining a frequency coefficient of said block data;

means for obtaining a complexity of said block data;

means for obtaining an amount of transformation of said frequency coefficient from said digital watermark data by using a quantization width corresponding to said frequency coefficient, said quantization width being obtained beforehand according to a manipulation method of said digital data contents;

means for embedding said digital watermark data in said digital data contents by transforming said frequency coefficient by said amount; and

means for generating watermarked digital data contents.

16. (Original) The integrated circuit as claimed in claim 15, wherein said quantization width is obtained by means comprising:

means for dividing first digital data contents into one or a plurality of first block data;

means for dividing second digital data contents into one or a plurality of

Attorney Docket No. 10746/36

second block data, said second digital data contents being obtained by manipulating said first digital data contents with a predetermined manipulation method;

means for transforming said first block data and said second block data into first frequency coefficients and second frequency coefficients respectively by applying an orthogonal transform;

means for obtaining difference values between said first frequency coefficients and said second frequency coefficients for each frequency coefficient;

means for calculating a standard deviation of distribution of said difference values; and

means for obtaining said quantization width by multiplying said standard deviation by a watermark embedding strength.

17. (Original) An integrated circuit for reading digital watermark data embedded in digital data contents, said integrated circuit comprising:

means for receiving said digital data contents;

means for dividing said digital data contents into block data;

means for obtaining a frequency coefficient of said block data; and

means for generating digital watermark data from said frequency coefficient by using a quantization width corresponding to said frequency coefficient, said quantization width being obtained beforehand according to a manipulation method of said digital data contents.

18. (Original) The integrated circuit as claimed in claim 17, wherein said quantization width is obtained by means comprising:

means for dividing first digital data contents into one or a plurality of first block data;

means for dividing second digital data contents into one or a plurality of second block data, said second digital data contents being obtained by manipulating said first digital data contents with a predetermined manipulation method;

means for transforming said first block data and said second block data into first frequency coefficients and second frequency coefficients respectively by applying an orthogonal transform;

Attorney Docket No. 10746/36

means for obtaining difference values between said first frequency coefficients and said second frequency coefficients for each frequency coefficient;

means for calculating a standard deviation of distribution of said difference values; and

means for obtaining said quantization width by multiplying said standard deviation by a watermark embedding strength.

19. (Original) A computer readable medium storing program code for causing a computer system to embed digital watermark data in digital data contents, said computer readable medium comprising:

program code means for receiving said digital data contents and said digital watermark data;

program code means for dividing said digital data contents into block data;

program code means for obtaining a frequency coefficient of said block data;

program code means for obtaining a complexity of said block data;

program code means for obtaining an amount of transformation of said frequency coefficient from said complexity and said digital watermark data by using a quantization width;

program code means for embedding said digital watermark data in said digital data contents by transforming said frequency coefficient by said amount; and

program code means for generating watermarked digital data contents.

20. (Original) The computer readable medium as claimed in claim 19, said program code means for obtaining said complexity of said block data comprising:

program code means for transforming said block data, by applying a wavelet transform, into coefficients of said wavelet transform, and

program code means for obtaining said complexity on the basis of the number of high frequency coefficients in said coefficients of said wavelet transform, each of said high frequency coefficients exceeding a threshold.

21. (Original) A computer readable medium storing program code for causing a computer system to embed digital watermark data in digital data contents, said

computer readable medium comprising:

program code means for receiving said digital data contents and said digital watermark data;

program code means for dividing said digital data contents into block data;

program code means for obtaining a frequency coefficient of said block data;

program code means for obtaining a complexity of said block data;

program code means for obtaining an amount of transformation of said frequency coefficient from said digital watermark data by using a quantization width corresponding to said frequency coefficient, said quantization width being obtained beforehand according to a manipulation method of said digital data contents;

program code means for embedding said digital watermark data in said digital data contents by transforming said frequency coefficient by said amount; and

program code means for generating watermarked digital data contents.

22. (Original) The computer readable medium as claimed in claim 21, wherein said quantization width is obtained by means comprising:

program code means for dividing first digital data contents into one or a plurality of first block data;

program code means for dividing second digital data contents into one or a plurality of second block data, said second digital data contents being obtained by manipulating said first digital data contents with a predetermined manipulation method;

program code means for transforming said first block data and said second block data into first frequency coefficients and second frequency coefficients respectively by applying an orthogonal transform;

program code means for obtaining difference values between said first frequency coefficients and said second frequency coefficients for each frequency coefficient;

program code means for calculating a standard deviation of distribution of said difference values; and

program code means for obtaining said quantization width by multiplying said standard deviation by a watermark embedding strength.

23. (Original) A computer readable medium storing program code for causing a computer system to embed digital watermark data in digital data contents, said computer readable medium comprising:

program code means for receiving said digital data contents;

program code means for dividing said digital data contents into block data;

program code means for obtaining a frequency coefficient of said block data;

and

program code means for generating digital watermark data from said frequency coefficient by using a quantization width corresponding to said frequency coefficient, said quantization width being obtained beforehand according to a manipulation method of said digital data contents.

24. (Original) The computer readable medium as claimed in claim 23, wherein said quantization width is obtained by means comprising:

program code means for dividing first digital data contents into one or a plurality of first block data;

program code means for dividing second digital data contents into one or a plurality of second block data, said second digital data contents being obtained by manipulating said first digital data contents with a predetermined manipulation method;

program code means for transforming said first block data and said second block data into first frequency coefficients and second frequency coefficients respectively by applying an orthogonal transform;

program code means for obtaining difference values between said first frequency coefficients and said second frequency coefficients for each frequency coefficient;

program code means for calculating a standard deviation of distribution of said difference values; and

program code means for obtaining said quantization width by multiplying said standard deviation by a watermark embedding strength.

25-72. (Canceled).